



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/531,142

04/11/2005

Katrin Zschintzsch

CEDE 2139

5075

321 7590 11/07/2008

SENNIGER POWERS LLP
100 NORTH BROADWAY
17TH FLOOR
ST LOUIS, MO 63102

EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

11/07/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@senniger.com

Office Action Summary	Application No. 10/531,142	Applicant(s) ZSCHINTZSCH ET AL.	
	Examiner EDNA WONG	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-34, 36-38, 56-60 and 63-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-34, 36-38, 56-60 and 63-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>September 15, 2008</u> . | 6) <input type="checkbox"/> Other: _____ |

This is in response to the Amendment dated October 16, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Response to Arguments

Double Patenting

Claims **30-34, 36-38, 56-60 and 63-67** have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 11/105,947 (Zschintzsch et al.).

The rejection of claims 30-34, 36-38, 56-60 and 63-67 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 11/105,947 (Zschintzsch et al.) is as applied in the Office Action dated December 11, 2006, July 5, 2007, January 3, 2008 and May 16, 2008 and incorporated herein. The rejection has been maintained for the following reasons:

Applicants state that unless and until the co-pending application matures into a patent, however, the appropriateness of such a rejection cannot be ascertained.

In response, the provisional double patenting rejection is held in abeyance until it is the only rejection remaining in at least one of the applications (MPEP § 804).

Claim Rejections - 35 USC § 112

Claims **30-34, 36-38, 56-60 and 63-67** have been rejected under 35 U.S.C. 112,

second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 30-34, 36-38, 56-60 and 63-67 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment

Claim Rejections - 35 USC § 102/103

Claims **30-38 and 59** have been rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Yanada et al.** (US Patent No. 6,508,927 B2).

The rejection of claims 30-38 and 59 under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yanada et al. is as applied in the Office Action dated May 16, 2008 and incorporated herein. The rejection has been maintained for the following reasons:

Applicants state that Yanada et al. state that the tin content may vary from 99.99 to 10 wt.% and the copper content may vary from 0.01 to 90 wt.%. But Yanada et al. do not disclose anywhere in their specification a method, a solution, or the conditions necessary to deposit a tin-copper alloy having a copper content of greater than 60%, or even provide the ordinarily skilled person with any reasonable basis for concluding that Yanada et al.'s method may successfully deposit a bronze having a copper content of greater than 60%. Rather, Yanada et al. disclose a preference for tin-copper alloys having tin contents of "more than 50 wt%, preferably more than 70 wt%, and more

preferably more than 90 wt%.” See Col. 8, lines 14-29. Moreover, each and every alloy deposited in Yanada et al.’s examples had 22 wt.% Cu or less, and most often significantly less copper. So it is apparent that Yanada et al.’s work was with high-Sn bronzes, not high-Cu bronzes; and that their isolated and cryptic reference to “0.01 to 90% Cu” is an artifact of the scrivener’s effort to be inclusive rather than a substantive disclosure having any meaning to an art-skilled reader.

Applicants state that Yanada et al. do not provide the ordinarily skilled person with any guidance toward or any reason to select the tin and copper ion concentrations to deposit a high copper bronze.

Applicants state that Yanada et al. disclose the use of anodes comprising tin alloyed with another metal, such as copper. While a tin-copper alloy is used as an anode in some of Yanada et al.’s examples, Yanada et al. never disclose anywhere in their specification a method, a solution, or the conditions necessary to deposit a tin-copper alloy having a high copper content.

In response, Yanada teaches a method, a solution, or the conditions necessary to deposit a tin-copper alloy having a copper content of greater than 60%, or even provide the ordinarily skilled person with any reasonable basis for concluding that Yanada et al.’s method may successfully deposit a bronze having a copper content of greater than 60% because Yanada teaches a method for electrolytic deposition of bronze onto a substrate, the method comprising:

- (i) immersing the substrate (= an object) [col. 7, line 53 to col. 8, line 13] in an

aqueous (= from water-soluble) acidic electrolyte having a pH less than about 1 (col. 19, claim 12) and comprising:

- (a) tin ions (col. 2, lines 45-55);
- (b) copper ions (col. 2, lines 56-67);
- (c) an alkylsulfonic acid (col. 3, lines 17-22);
- (d) an aromatic, nonionic wetting agent (= polyoxyethylene β -naphthol ether) [col. 5, lines 45-58]; and
- (e) an oxidation inhibitor (col. 6, lines 26-42);

wherein a ratio of tin ion concentration (= 1-99 g/L) to copper ion concentration (= 0.001-99 g/L) [col. 3, lines 1-9] is sufficient to electrolytically deposit a bronze having a copper content of greater than about 60% (= a tin-copper alloy consisting of 99.99 to 10 wt% of tin and 0.01 to 90 wt% of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions) [col. 8, lines 15-29]; and

(ii) applying a current (= 0.01-100 A/dm²) [col. 7, lines 31-37] through a copper-tin anode (= the anode may be a soluble one, i.e., tin, copper, or tin alloy containing at least one metal selected from copper, gold, silver, zinc, bismuth, nickel, cobalt, and palladium) [col. 7, lines 40-52] and the substrate (= an object) [col. 7, line 53 to col. 8, line 13] at a current density (= the current density can be between 0.1 A/dm² and 100 A/dm²) [col. 5, lines 61-62] sufficient to electrolytically deposit bronze having the copper content greater than about 60% onto the substrate (= a tin-copper alloy consisting of 99.99 to 10 wt% of tin and 0.01 to 90 wt% of copper, depending on the ratio of tin ions

and copper ions in the plating bath and the plating conditions) [col. 8, lines 15-29].

There is no requirement that the claim limitations be expressly articulated in the reference. The teaching, suggestion or inference can be found not only in the references but also from knowledge generally available to one of ordinary skill in the art. References are evaluated by what they collectively suggest to one versed in the art, rather than by their specific disclosures. *In re Simon* 174 USPQ 114 (CCPA 1972); *In re Richman* 165 USPQ 509, 514 (CCPA 1970).

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists (MPEP § 2144.05(I)).

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (MPEP § 2123 (II)).

Applicants state that Yanada et al. do not disclose anywhere the use of an anode whose composition is sufficient to deposit a high copper bronze. In fact, the highest copper content in any of the tin-copper alloys exemplified therein is no more than 22 wt.% Cu, which indicates that Yanada et al. employed tin-copper anodes having a higher concentration of tin than copper.

In response, claim 30, line 14, recites “a copper-tin anode.” There is no composition recited in the claims for the copper-tin anode. It is well settled that unpatented claims are given the broadest, most reasonable interpretation and that limitations are not read into the claims without a proper claim basis therefor. *In re Prater*

415 F. 2d 1393, 162 USPQ 541 (CCPA 1969); *In re Zeltz* 893 F. 2d 319, 13 USPQ 1320.

Furthermore, Yanada teaches that:

“The anode may be a soluble one, i.e., tin, copper, or tin alloy containing at least one metal selected from copper, gold, silver, zinc, bismuth, nickel, cobalt, and palladium. ***The use of the soluble anode can supplement the required metal ions depending to the metal contained in the anode. The content of the metal alloyed with tin depends on the amount of the metal ions required in the plating bath.*** The anode may also be an insoluble one, such as carbon and platinum. Incidentally, the plating bath of the present invention will not cause displacement deposition of copper on the tin anode or tin-copper alloy anode even when it is not energized” (col. 7, lines 40-51).

Yanada teaches that one having ordinary skill in the art has the skill to determine the composition of the soluble tin-copper alloy anode because the use of the soluble anode can supplement the required metal ions depending to the metal contained in the anode. The content of the metal alloyed with tin depends on the amount of the metal ions required in the plating bath (col. 7, lines 40-46).

Applicants state that none of the examples in the various references disclose an electrodeposition method for depositing a bronze having at least 60 wt.% copper. Such a solution, or any reason for preparing it, is wholly absent from the prior art. It is evident the isolated and cryptic references to essentially the entire gamut from no Cu to 100% Cu are a patent drafting tactic to be inclusive and not any substantive disclosure having any meaning to an art-skilled reader.

In response, disclosed examples and preferred embodiments do not constitute a

teaching away from a broader disclosure or nonpreferred embodiments (MPEP § 2123 (II)).

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill might infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* 193 USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re Grice* 135 USPQ 365; *In re Preda* 159 USPQ 342 (1968).

Applicants state that in this case, MPEP § 2131.03 Part II applies since Yanada et al. disclose a range of 0.01 to 90 wt.% copper and Applicants' claimed range is a copper content greater than about 60%. *In this regard, the claim range covers only the highest 33% of the disclosed range.* Since no examples fall within the claimed range, the MPEP endorses a "case by case determination" as to anticipation.

Applicants state that Applicants respectfully submit that Yanada et al.'s disclosed range does not describe the claimed range with sufficient specificity to be anticipatory.

Applicants state that the Office has resorted to the conclusory assertion that the broad ion concentrations are "sufficient." While the references may have provided enough examples that the ordinarily skilled person may derive ratios of tin ion concentrations and copper ion concentrations sufficient for depositing tin-copper alloys having high tin contents, the references lack any such disclosure that would have guided the ordinarily skilled person toward ratios sufficient to deposit high copper

bronzes, or would have provided the ordinarily skilled person with any reason for selecting such ratios

In response, claim 30, lines 10-12, recites:

“wherein a ratio of tin ion concentration to copper ion concentration is sufficient to electrolytically deposit a bronze having a copper content of greater than about 60%.”

Is this a claim limitation of sufficient specificity? What is the ratio of tin ion concentration to copper ion concentration? Can one having ordinary skill in the art determine this ratio? Yanada teaches that one having ordinary skill in the art can determine a ratio of tin ion concentration to copper ion concentration:

“According to the present invention, a tin-copper alloy consisting of 99.99 to 10 wt % of tin and 0.01 to 90 wt % of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions. The alloy composition should be selected according to the intended use” (col. 8, lines 20-25).

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (MPEP § 2123 (II)).

The claim limitation of “to electrolytically deposit a bronze having a copper content of greater than about 60%” is simply the intended result of a process step positively recited. A process yielding a novel and nonobvious product may nonetheless be obvious (MPEP § 2116.01).

Furthermore, the Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage

may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

Applicants state that in this regard, teaching away is important and must be considered, lack of examples is important and must be considered, and lack of any rationale for making the claimed modification is important and must be considered.

In response, the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternative because such disclosure does not criticize, discredit, or otherwise discourage the use of the alternatives (MPEP § 2141.02(VI)).

Applicants state that in fact, the prior art of record provided the ordinarily skilled person with ample reason not to select such ratios.

In response, the disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be reviewed in such light. *In re Meinhardt* 157 USPQ 270; and MPEP § 2123 and § 2141.02(VI).

Applicants state that the Office may assert that if the intended use calls for a bronze, then Yanada et al. may have given the ordinarily skilled person reason to alter

the tin ion and copper ion concentrations in a manner sufficient to deposit a bronze having greater than 60% copper.

In response, the Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

Applicants state that even though Yanada et al. state that the composition is determined by the intended use, Yanada et al.'s only disclosed intended uses include solder or etching resist, in which case "the content of the tin should be more than 50 wt%..." Yanada et al. did not provide any intended uses for a bronze having a copper content greater than 60%, nor had other previously cited references, such as Dietterle et al. and Tsuji et al. In fact, even though Yanada et al. briefly mention of high copper alloys with tin, Yanada et al. disclose no uses for the bronzes and even state "These plating baths, however, do not serve as a substitute for tin plating baths or tin-lead alloy plating baths applied to electronic parts and printed circuit boards." See Col. 1, lines 31-41. In short, none of the prior art of record discloses a use for a bronze having a copper content of at least 60% that would have given the ordinarily skilled person a

reason to select tin ion and copper ion concentrations sufficient to deposit a high copper bronze. If anything, Yanada et al. teach away from deposition of high copper bronzes by stating that they are particularly inapplicable to the intended uses of their deposition compositions.

In response, all of the claimed ranges overlap or lie inside ranges disclosed by the prior art. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists (MPEP § 2144.05(I)).

Yanada teaches the method steps that are presently claimed. Although a bronze having a copper content of greater than about 60% is not disclosed in the prior art:

(i) Similar processes can reasonably be expected to yield products which inherently have the same properties. *In re Spada* 15 USPQ 2d 1655 (CAFC 1990); *In re DeBlauwe* 222 USPQ 191; *In re Wiegand* 86 USPQ 155 (CCPA 195);

(ii) The Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144; and

(iii) Yanada teaches that one having ordinary skill in the art can determine a ratio of tin ion concentration to copper ion concentration sufficient to electrolytically

deposit a bronze having a copper content of greater than about 60%:

“According to the present invention, a tin-copper alloy consisting of 99.99 to 10 wt % of tin and 0.01 to 90 wt % of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions. The alloy composition should be selected according to the intended use” (col. 8, lines 20-25).

Applicants state that taken as a whole, the cited Yanada et al. reference (and the other references previously made of record) clearly describe methods and compositions for depositing tin-rich solder alloys, and none of the art of record discloses any methods or compositions for deposition of copper rich bronzes or provides any guidance or reason, (i.e., no intended uses that would have given a reason) to prepare compositions for the deposition of copper-rich bronzes.

In response, a reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill might infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* 193 USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re Grice* 135 USPQ 365; *In re Preda* 159 USPQ 342 (1968).

The Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re*

Wiseman 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

Applicants state that *prima facie* obviousness is not established unless the Office can show that the result of the combination or modification would have provided the ordinarily skilled person with a reasonable expectation of success.

Applicants state that Yanada et al. agree with Applicants' assertion that the prior art at the time of the filing of Applicants' application had yet to disclose a successful solution to the problem of plating bronzes from acidic electrolytes.

Applicants state that since none of Yanada et al.'s examples show successful deposition of a bronze, the ordinarily skilled person could only have concluded that Yanada et al. did not provide the solution either. Therefore, since Yanada et al. merely recognized the problem and did not provide any solution, the ordinarily skilled person would not have concluded that Yanada et al.'s compositions and methods would have been reasonably successful at depositing bronzes. Since the requisite predictability or reasonable expectation of success is lacking, the Office has not established *prima facie* obviousness.

In response, all of the claimed ranges overlap or lie inside ranges disclosed by the prior art. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists (MPEP § 2144.05(I)).

Yanada teaches the method steps that are presently claimed. Although a bronze

having a copper content of greater than about 60% is not disclosed in the prior art:

(i) Similar processes can reasonably be expected to yield products which inherently have the same properties. *In re Spada* 15 USPQ 2d 1655 (CAFC 1990); *In re DeBlauwe* 222 USPQ 191; *In re Wiegand* 86 USPQ 155 (CCPA 195);

(ii) The Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144; and

(iii) Yanada teaches that one having ordinary skill in the art can determine a ratio of tin ion concentration to copper ion concentration sufficient to electrolytically deposit a bronze having a copper content of greater than about 60%:

“According to the present invention, a tin-copper alloy consisting of 99.99 to 10 wt % of tin and 0.01 to 90 wt % of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions. The alloy composition should be selected according to the intended use” (col. 8, lines 20-25).

Claim Rejections - 35 USC § 103

I. Claims **56-58** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Yanada et al.** (US Patent No. 6,508,927 B2) as applied to claims 30-38 and 59 above.

The rejection 56-58 under 35 U.S.C. 103(a) as being unpatentable over Yanada et al. as applied to claims 30-38 and 59 above is as applied in the Office Action dated May 16, 2008 and incorporated herein. The rejection has been maintained for the reasons as discussed above.

Applicants' remarks have been fully considered but they are not deemed to be persuasive.

II. Claim **60** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Yanada et al.** (US Patent No. 6,508,927 B2) as applied to claims 30-38 and 59 above, and further in view of **Tsuji et al.** (US Patent No. 6,607,653 B1).

The rejection of claim 60 under 35 U.S.C. 103(a) as being unpatentable over Yanada et al. as applied to claims 30-38 and 59 above, and further in view of Tsuji et al. is as applied in the Office Action dated May 16, 2008 and incorporated herein. The rejection has been maintained for the reasons as discussed above.

Applicants' remarks have been fully considered but they are not deemed to be persuasive.

III. Claims **63-67** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Yanada et al.** (US Patent No. 6,508,927 B2) as applied to claims 30-38 and 59 above.

The rejection of claims 63-67 under 35 U.S.C. 103(a) as being unpatentable over

Yanada et al. as applied to claims 30-38 and 59 above is as applied in the Office Action dated May 16, 2008 and incorporated herein. The rejection has been maintained for the following reasons:

Applicants state that Yanada et al. do not disclose anywhere in their specification the unique advantage that applicants discovered that may be obtained by using a copper-tin anode, and in particular, do not disclose the use of relatively low tin ion and copper ion concentrations.

In response, Yanada teaches that:

“the content of tin salt in the plating bath should preferably be 1-99 g/L, particularly 5-59 g/L in terms of tin, and the content of copper salt in the plating bath should preferably be 0.001-99 g/L, particularly 0.01-54 g/L in terms of copper” (col. 3, lines 1-5).

Yanada fairly teaches the use of relatively low tin ion and copper ion concentrations.

Applicants state that the *prima facie* case of obviousness is effectively rebutted herein since the cited Yanada et al. expressly prefer higher concentration ranges than the maximum tin ion concentration allowed by claims 63 through 67, which is a material teaching away. Moreover, the lowest tin concentration used in any of Yanada et al.'s examples is 7 g/L, which is 40% higher than the maximum tin ion concentration allowed by the claims, which is a material teaching away.

In response, the disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be

reviewed in such light. *In re Meinhardt* 157 USPQ 270; and MPEP § 2123 and § 2141.02(VI).

The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the use of the alternatives (MPEP § 2141.02(VI)).

Applicants state that Yanada et al. reference does not disclose methods, compositions, or conditions necessary for depositing high copper bronzes.

In response, Yanada teaches a method, a solution, or the conditions necessary to deposit a tin-copper alloy having a copper content of greater than 60% because Yanada teaches a method for electrolytic deposition of bronze onto a substrate, the method comprising:

(i) immersing the substrate (= an object) [col. 7, line 53 to col. 8, line 13] in an aqueous (= from water-soluble) acidic electrolyte having a pH less than about 1 (col. 19, claim 12) and comprising:

- (a) tin ions (col. 2, lines 45-55);
- (b) copper ions (col. 2, lines 56-67);
- (c) an alkylsulfonic acid (col. 3, lines 17-22);
- (d) an aromatic, nonionic wetting agent (= polyoxyethylene β -naphthol ether) [col. 5, lines 45-58]; and

(e) an oxidation inhibitor (col. 6, lines 26-42);

wherein a ratio of tin ion concentration (= 1-99 g/L) to copper ion concentration (= 0.001-99 g/L) [col. 3, lines 1-9] is sufficient to electrolytically deposit a bronze having a copper content of greater than about 60% (= a tin-copper alloy consisting of 99.99 to 10 wt% of tin and 0.01 to 90 wt% of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions) [col. 8, lines 15-29]; and

(ii) applying a current (= 0.01-100 A/dm²) [col. 7, lines 31-37] through a copper-tin anode (= the anode may be a soluble one, i.e., tin, copper, or tin alloy containing at least one metal selected from copper, gold, silver, zinc, bismuth, nickel, cobalt, and palladium) [col. 7, lines 40-52] and the substrate (= an object) [col. 7, line 53 to col. 8, line 13] at a current density (= the current density can be between 0.1 A/dm² and 100 A/dm²) [col. 5, lines 61-62] sufficient to electrolytically deposit bronze having the copper content greater than about 60% onto the substrate (= a tin-copper alloy consisting of 99.99 to 10 wt% of tin and 0.01 to 90 wt% of copper, depending on the ratio of tin ions and copper ions in the plating bath and the plating conditions) [col. 8, lines 15-29].

There is no requirement that the claim limitations be expressly articulated in the reference. The teaching, suggestion or inference can be found not only in the references but also from knowledge generally available to one of ordinary skill in the art. References are evaluated by what they collectively suggest to one versed in the art, rather than by their specific disclosures. *In re Simon* 174 USPQ 114 (CCPA 1972); *In re Richman* 165 USPQ 509, 514 (CCPA 1970).

In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists (MPEP § 2144.05(I)).

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (MPEP § 2123 (II)).

Applicants state that neither reference would have provided the ordinarily skilled person with any reason whatsoever for selecting the lowest tin ion concentrations of the broadest ranges disclosed therein and prepare compositions having a tin ion concentration within the range required by the claims to deposit copper rich bronzes or for any other reason.

In response, Yanada teaches that:

“the content of tin salt in the plating bath should preferably be 1-99 g/L, particularly 5-59 g/L in terms of tin, and the content of copper salt in the plating bath should preferably be 0.001-99 g/L, particularly 0.01-54 g/L in terms of copper” (col. 3, lines 1-5).

The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternative because such disclosure does not criticize, discredit, or otherwise discourage the use of the alternatives (MPEP § 2141.02(VI)).

The Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be

different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edna Wong/
Primary Examiner
Art Unit 1795

EW
November 2, 2008